The Veterinary Record.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

NO. 10. MARCH 7, 1931. VOL. 11.

Communications.

Malicious Injury of Cattle.

Deaths following Punctured Wounds in the Rectum and Vagina.

By J. F. Craig, M.A., M.R.C.V.S., and W. Kearney, M.R.C.V.S.

VETERINARY COLLEGE OF IRELAND, DUBLIN.

The series of cases recorded in this communication appeared in nine cows and one heifer in a herd in County Cork. The owner had 14 dry cows in calf and 11 heifers at pasture in a field of his beside the Bendon river. The milch cows belonging to this farmer were grazed on another part of the farm.

The casualities were confined to the herd of dry cows and heifers.

On May 19th, 1930, one of these cows calved normally and was noticed to pass blood from the rectum, and to strain a half-an-hour after calving. She died in a week. No *post-mortem* examination or other investigation as to the cause of death was made at that time.

A second cow calved normally on June 23rd; she passed blood per rectum and strained immediately after calving and died four days later. This cow was buried also without *post-mortem* examination. Poisoning was suspected as the cause of death of both these animals.

A third cow calved normally on June 25th and also strained and passed blood like the two previous animals shortly afterwards and died in three days. She was seen during life by a veterinary surgeon. The carcass was buried without a *post-mortem* examination.

A fourth cow was due to calve on June 30th, but was taken ill like the others on June 27th in the paddock. She was being driven from the paddock to the house when she was noticed to be abnormally swollen, to be walking with difficulty and was passing blood and straining. She died on June 30th. She was also buried without being examined.

A fifth cow was due to calve on July 22nd. She developed the same symptoms as the others on June 28th, a day after removal from the paddock, and she died in four days. A veterinary surgeon examined the carcass and found wounds in the rectum.

A sixth case was a two-year-old heifer not in calf. She was found dead in a paddock near the house four days after removal from the field beside the river. There was a lot of blood in the field around the carcass. A *post-mortem* examination was made by a veterinary surgeon and a piece of the latter portion of the large intestine was sent to the Veterinary College together with a sample of blood, some contents of the rumen and a lymphatic gland. In the sample of blood no anthrax bacilli were found. The contents of the rumen consisted of grass. The lymph gland was normal. The piece of bowel was about 12-in. long and it presented six punctured wounds, four completely and two incompletely perforating the bowel wall, the complete perforation opening into the peritoneum. Each wound was surrounded by a zone of blood effusion. The wounds were about $\frac{3}{8}$-in. in one diameter and their edges were ragged. The wounds were scattered over the mucous surface of the bowel, one of them being 2-in. and another as much as $11\frac{1}{2}$-in. from one end. According to an estimate one of the wounds must have been about two feet from the anus. The wounds were chiefly situated on the upper aspect of the bowel wall. The bowel was examined for coccidia with negative results.

A seventh cow was due to calve on August 4th. She was noticed ill on June 29th, two days after removal from the original field. She showed the same symptoms as the others and died on July 2nd. Wounds resembling those of the previous case were noted in the rectum of this animal by a veterinary surgeon who examined the carcass.

The eighth cow calved normally on June 14th and remained healthy up to July 1st. She had previously been removed from the paddock. On July 1st she passed blood through the rectum and vagina and died on July 4th. A *post-mortem* examination of this animal was carried out and the rectum was sent to the Veterinary College. The piece of bowel received was about $7\frac{1}{2}$-in. in length. When incised along its length it presented six punctured wounds which had penetrated completely or partially through its wall. These wounds were similar to those noted in the piece of bowel from the sixth case. They were each surrounded by blood effusions into the neighbouring tissue and there were some patches of fibrin on the serous surface indicating the presence of peritonitis. The wounds were scattered over the surface and were situated from $3\frac{1}{2}$ to 7 inches from the posterior extremity of the bowel. There were no coccidia found on examination of the mucous membrane of the bowel.

The last or ninth case—a cow—fell ill with the same symptoms on July 2nd and was placed under treatment. She died on July 19th. A *post-mortem* examination was carried out on this animal and punctured wounds similar to those in the others were found in the rectum.

None of the other animals which had been grazing on the same paddock showed any symptoms. These animals were removed from the paddock to the precincts of the farmhouse, but later were returned to the paddock and the place put under police supervision after it was reported that the only explanation that could be given for the mortality was the wounds, which were inflicted by some person by means of a pointed instrument inserted into the rectum or vagina as the case might be.

On July 29th, 1930, a *post-mortem* examination was carried out by one of us on the carcasses of the above nine

DEPT. OF VET. MEDICINE

animals. All the carcasses had been buried and were exhumed for the examination. Putrefactive changes were in all cases advanced at this time, but punctured wounds were identified in the rectum of six animals and in the vagina of two. In one cow there was evidence also of peritonitis. In the remaining carcass the viscera were absent and no opinion could be formed as to the cause of death, but this carcass had previously been examined by a veterinary surgeon and punctured wounds found.

These lesions in the various cattle which died pointed to the infliction of the wounds by some person inserting a pointed instrument through the anus or vulva. The person most likely to have caused such injuries, judging from the experience of former cases reported in Great Britain and on the Continent, was a sexual pervert.

In the evidence given at the enquiry into the cause of these losses it was clearly shown that there was no personal enemey of the owner in the locality or outside it and no one has yet been accused of having been responsible for the injuries, despite extensive investigations by the police.

In order to obtain some indication, if possible, as to what sort of agent could have produced these punctured wounds, a number of fresh specimens of rectum and posterior bowel from cattle were obtained from the abattoir and a number of different-sized rods were inserted through the anus as far forwards as they would go in order to puncture the wall of the bowel. It was found that a straight round rod about $\frac{3}{8}$-in. thick with a blunt round end would inflict punctured wounds on the wall of the bowel most closely resembling those in the cases recorded and that it might be passed forwards as far as two feet before it punctured the intestines. A similar instrument with a sharp point inflicted wounds very close to the anus owing to the fact that it was more readily caught in the folds of the mucous membrane. This also occurred if the instrument had a bend in its length. The human finger made a more gaping and rounded wound. It was also noted that the vaginal wall could only be punctured with the greatest difficulty.

The object of this communication is to put on record a cause of loss among cattle which might readily escape notice unless a careful examination of the posterior bowel was carried out. Moreover, there appear to be very few records of such cases.

The last cattle maiming cases of this nature of which we have evidence were described by Mr. Tudor Hughes, B.Sc., M.R.C.V.S., in February, 1923, and his account was published in the *Veterinary Record* in May of that year. The losses occurred in Montgomeryshire and began to appear among the cows in a small farm in the summer of 1913. The cattle had been turned out apparently all right and sometime afterwards were found seriously ill, showing loss of appetite, salivation, bloating and much pain. At first it was thought that the deaths were due to poisoning by water-dropwort. The losses continued to January of 1914. The female animals alone were affected and the early symptoms were not observed by the owner. Among three cases fully recorded all showed evidence of tympany and only one passed blood per rectum. Punctured wounds were found in the rectum and abrasions in the vagina. Altogether eight milking cows and two heifers died from this cause. A domestic female servant under 16 years of age was convicted of causing the damage. The instrument used was a broken piece of an ordinary walking stick. The medical evidence was to the effect that the prisoner was morally depraved. This was a case of sadism.

The literature on the subject of sadism has been investigated by W. L. Williams, and in his work on "The Diseases of the Genital Organs of Domestic Animals" (1921) he gives an interesting account of five Continental records described by Guillebau.

In one instance five cows and two heifers in one establishment were mutilated in the vagina and rectum and four died. The seven animals had received a total of over 30 punctured wounds, about the size of goose quill punctures, through the uterus and rectum, the urethra and bladder. Extensive and fatal hæmorrhage ensued as well as metritis, vaginitis and peritonitis. The culprit was not discovered.

In a second instance near Berne in 1896, between January and June, 12 cattle and ten goats, of which all but two cattle belonged to one establishment, were injured, mostly fatally. The symptoms in the cases not immediately fatal consisted of straining, bloody discharge from the vagina, swelling of the vulva and general weakness. In the last one examined *post-mortem*, fistulæ extended from the vagina forwards and one of them penetrated through various organs to the middle of the chest. The guilt for these misdeeds was afterwards confessed by a nineteen-year-old boy who was regarded as idiotic and incapable of work other than the caring of cattle.

A third series of cases occurred in 1894 and 1895 in Wolfikon, Schwartzenbach and Rickensbach. In the first place eight out of 15 cattle became ill with a bloody vaginal discharge, depression and peritonitis, and either died or were slaughtered. Two of the remaining seven animals also became affected in a fortnight. Two cows purchased later shared the same fate and afterwards three goats died under the same conditions. The servant in charge found employment in another part of Schwartzenbach and there a heifer, a goat, four oxen and a cow became ill with the same mutilation of the sexual organs. The servant was discharged and obtained a new position in Rickensbach. There four cows became affected in rapid succession with symptoms of vaginal and rectal hæmorrhage and in three of them wounds in the rectum and vagina were found. In the rectum there were 35 wounds and in the vagina only one perforating wound in one of these animals, which was examined *post-mortem*. The servant afterwards confessed his guilt and stated that he had caused the injuries with a stick. He was 24 years old and of low intelligence.

It is interesting to observe that some of these fatalities were at first ascribed to an undetermined epizootic, probably anthrax or "intestinal diphtheria."

A fourth record was made of a similar occurrence in 1895 in the same stable in Rickensbach, in which one animal was involved. The animal was a cow and showed symptoms of colpitis and after four days there escaped from the rectum four litres of blood. The cow was destroyed and on *post-mortem* examination there were found numerous injuries including five penetrating wounds in the rectum, and peritonitis. The injuries were inflicted by an attendant, 18 years old.

A fifth record is also given of non-fatal injuries to the vagina of 20 cows and heifers inflicted by a fork handle.

Clinical Observations on Pregnancy Toxæmia in Ewes.

By C. V. Dayus, M.R.C.V.S., and C. Weighton, M.R.C.V.S.
Dunedin, New Zealand.

Though for a number of years attention has been drawn towards a disease among ewes in the later stages of pregnancy, we feel no apology is necessary for recording these notes, as the exact pathology of the condition is still obscure, and further, we are particularly conscious of the barrenness of veterinary literature regarding sheep diseases in general. That the latter fact is appreciated by some research workers who have turned their attention to sheep diseases with greater enthusiasm, is indicated by comparatively recent contributions that have appeared in various English and American journals.

We have retained the title Pregnancy Toxæmia, under which term the condition was described by Russell Greig in England,[1] though several different terms, many confusing, have been used from time to time. In New Zealand the condition was termed Antepartum Paralysis[2], in America Acidosis of Pregnant Ewes[3], and Preparturient Eclampsia[4]; it has also been described under such terms as Parturient Fever, Preparturient Paresis, Stercoremia, Moss ill, Acute Parenchymatous Hepatitis (Hutyra and Marek), White Liver, Tremblings, etc.

History.—The disease has been known for several years. No doubt Steel refers to it in his well-known book under the term Parturient Fever[5]. The author admits that "our information on this disease is mainly derived from a paper by Isaac Seamen in the *Journal of the Royal Agricultural Society*, Vol. V." The first noteworthy description of the disease of which we are aware, was made by Gilruth in New Zealand, who recorded it 35 years ago and four years later, under the heading Ante-partum Paralysis in Ewes, he confirmed his previous opinion that "the symptoms are induced by fatty infiltration of the liver and other organs, brought on by fatty diet combined with want of exercise in ewes bearing twin lambs[6]." Since the war it has received notice from other writers, and it is undoubtedly a distinct clinical entity. It has a wide distribution, having been recorded in New Zealand, U.S.A., British Columbia, England and other European countries.

Etiology.

An interesting contribution to our knowledge of the disease in recent years, has been the demonstration of a fall in the alkali reserve of the blood, which led the American investigators to conclude that a condition of acidosis exists.[7] Some loss from this disease occurs annually in New Zealand and in seasons such as the immediate past one, the incidence of it tends to assume the nature of an epidemic. Mention has been made in England quite recently of heavy losses in some seasons.[8] There is no suspicion of anything of a contagious nature in this disease, as in New Zealand it is conspicuous by its absence on the large hill country sheep runs. It has made its appearance progressively with the sub-division of the country and the consequent management of sheep in smaller flocks, a departure from their natural environment, and such flocks are more intensively fed and in consequence they usually take less exercise. It appears to us that the investigation of no other disease stresses to a greater extent the necessity for a thorough knowledge of sheep husbandry than Pregnancy Toxæmia. Much has been written and it has frequently been emphasised that ewes in a plethoric condition are predisposed to this disease, especially if they have insufficient exercise—a conclusion that is true, with the obvious remedy in sound management, especially in regard to feeding and exercise.

Nevertheless, it is possible to over-emphasise the importance of this plethoric condition. We have observed in the majority of cases and especially those in which the highest mortality has taken place that plethora was not the immediate predisposing cause; on the contrary, there is a constant history of ewes declining more or less rapidly in condition, and this occurs at a critical stage of gestation.

Generally speaking, affected ewes would have been found in good condition when the rams were used, and afterwards would have been "done well," at any rate, for the first three months of pregnancy, but subsequently it was not possible adequately to maintain their condition. In consequence of this check and rapid decline, it is logical to assume that a serious disturbance of metabolism results, which may be sufficient explanation for the accompanying ketosis.

In New Zealand there is practically no concentrate feeding, except in stud flocks; in these, losses from this condition are comparatively rare. The ordinary cross-bred flocks are kept on grass pasture until feed becomes less plentiful, when a change is made to root crops (turnips and swedes) with a run off on to a grass paddock, where sometimes hay or chaff is fed. In the early spring, after a long surfeit of roots (low in available carbohydrate) feed may have been exhausted before there is adequate growth of fresh green feed available, with the result that the sheep receive a severe check. The main reliance for winter feeding is placed in root crops, autumn grass growth and hay, all subject to the vagaries of the seasons, and the root crops to pests in addition. These factors appear to afford some explanation for the occasional epidemic nature of the disease, such as the immediate past season, when the autumn was particularly dry and the spring one of the latest and most inclement on record.

Hadleigh Marsh states "whatever the principal causative factor may be, there is no doubt in my mind that the predisposing cause is involved in the method of handling and feeding the pregnant ewe."[9]. Any other factor which gives a severe check to ewes in advanced pregnancy, such as climatic changes or sudden changes of feed may also be regarded as predisposing causes.

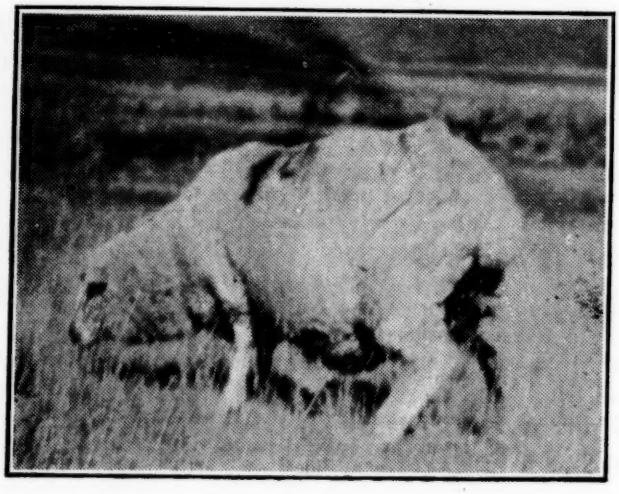
Reference has been made to ketosis, which is, in all probability, brought about by the attempted manufacture of carbohydrate from the fat stores, rendered necessary by a deficient carbohydrate intake in the diet, though so far it has not been possible to demonstrate a hypoglycæmia in those blood samples from affected ewes that have been examined by us by courtesy of the Otago Medical School. The mottled appearance of the subcutaneous kidney and

The symptoms shown were those of vaginitis which were followed by stricture. After a time the caretaker was discovered to be the culprit.

mesenteric fat, almost invariably noticed on *post-mortem*, probably indicates the rapid utilisation for this purpose. The increased accumulation of fat in the liver is also consistent with this theory.

Symptoms.

Age quite definitely increases the susceptibility; symptoms are comparatively rare in young ewes, the majority of cases occurring in ewes six-tooth and over. We have seen cases in ewes pregnant with single lambs, but these are quite the exception; those affected are pregnant with two or more lambs. Symptoms usually develop during the period from three weeks off right up to parturition, but should this take place during the course of the disease, though it does not happen as frequently as might be supposed, the ewe appears to have a good chance of recovery. Another significant point is that ewes affected close up to lambing seem devoid of the usual mammary development. Should abortion or a full time gestation terminate the lambs are often dead, though well developed and apparently normal, but the ewe has little or no milk. We recognise two more or less distinct types, the first where the ewe assumes a dopey attitude and hangs her head, the second where the head is held elevated to one side and eclamptic symptoms are more marked (the blood calcium is within normal limits). The first type is the commonest; typical examples are shown in the photographs.



An affected ewe ceases feeding, but thirst is accentuated. She can be picked out in the early stages by driving the flock a distance, when a stringhalt-like action will be noted, with knuckling over at the hind fetlocks. The ewe will lag behind the flock and if an attempt is made to catch her, she will go down hind quarters first after very little exertion. An affected ewe develops an erratic gait, separates herself from the flock and may stand for hours on the same spot, often with her head into some obstacle. It is quite easy to go up to her, she takes little or no notice of man or dog. Temperature is normal, or slightly raised, respiration is increased, sometimes there is spasmodic micturition, with the passage of small quantities of urine paler than normal in colour.

When eclamptic symptoms are more pronounced, we notice champing of the jaws, with a white froth from the mouth and a discharge from the nostrils containing a staining of regurgitated liquid. Tetany of facial muscles and body tremblings are in evidence. The wool frequently pulls out with ease; a portion of the belly wool may be hanging loose, and the whole fleece presents an unkempt appearance.

Later, either type assumes the recumbent position and becomes semi-comatose and the ewe may exist in this condition for several days. Death supervenes anytime from 36 hours to about eight days after the first onset of symptoms. Mortality among affected ewes is well over 90 per cent.

Post-mortem.—There is an absence of any conclusive *post-mortem* findings. There is some degree of fatty infiltration of the liver in all pregnant females; in this disease there is generally intense fatty infiltration. The organ is enlarged, much paler than normal in colour (approaching a yellowy brown) the surface is mottled in appearance, the capsule tears off easily and the liver substance breaks very easily. The gall bladder is distended beyond normal. It appears doubtful if too great significance can be attached to the advanced condition of fatty infiltration of the liver met with, which is probably the result rather than the cause of the disease.

Very little food is found in the stomach and the contents are more liquid than normal. The mottled appearance of the subcutaneous mesenteric and kidney fat has already been referred to.

Treatment.

It might at once be stated that so far no satisfactory treatment exists for affected ewes. In regard to the ketosis theory, Hadleigh Marsh[10] and later Russell Greig[11] suggested the therapeutic use of glucose, though previously Dimock, Healy and Bullard[12] had reported that the intravenous injection of glucose gave no beneficial results. We have given the treatment a further extensive trial, though, as has been stated already, it was not possible to demonstrate a condition of hypoglycæmia. Sterile solutions of glucose (5 and 10 per cent.) in normal saline were used and doses of 10 and 20 ounces employed both intravenously and subcutaneously.

The cases tabulated on page 257 are typical of 75 cases treated. We are satisfied that the use of glucose intravenously or subcutaneously is useless. Udder inflation has also been tried without any success. During the last season a popular method of treatment here consisted of repeated large doses

Results of Six Cases.

No. 1.—Aged ewe, a fortnight off lambing, head erect type. Temperature, 104° F.	Given 20 ozs. 10 per cent. glucose intravenously, August 22nd, 1930.	Died morning of August 23rd, 1930.
No. 2.—Aged ewe, dopey type. Temperature, 104·8° F.	Given 15 ozs. 10 per cent. glucose intravenously and 5 ozs. subcutaneously, August 22nd, 1930.	Worse next morning. Died morning of August 24th, 1930.
No. 3.—Aged ewe, head erect. Eclamptic symptoms well marked, ill August 26th, 1930.	Given 20 ozs. 10 per cent. glucose intravenously, August 26th, 1930.	Died morning of August 27th, 1930.
No. 4.—Six-tooth Corriedale ewe, ill six days, dopey type.	Given 10 ozs. of 5 per cent. glucose subcutaneously, September 11th, 1930. Previously given 2 lbs. treacle in two doses between September 5th, 1930, and September 11th, 1930.	Died September 15th, 1930.
No. 5.—Full mouth Romney cross ewe, ill on August 14th, 1930, close to lambing.	Given 20 ozs. of 10 per cent. glucose intravenously, August 14th, 1930. Given ¾-lb. treacle orally, August 15th, 1930. Two lambs born dead evening of August 16th, 1930, ewe no milk. Down, could not get up, morning of August 17th, 1930. Given 20-ozs. 10 per cent. glucose subcutaneously.	Died morning of August 18th, 1930.
No. 6.—Full mouth ewe, ill September 22nd, 1930, due to lamb.	Given 10 ozs. of a 5 per cent. solution glucose subcutaneously, on September 22nd, 1930.	Died September 24th, 1930.

of treacle (up to 1-lb. as a single dose). Superpurgation sometimes caused abortion and as a result some success was claimed. Laxative medicine does appear to have benefit and one of the best laxatives is treacle in therapeutic doses. We do not suggest that it has any value as a means of administering carbohydrate.

Failure to obtain beneficial results by the use of glucose intravenously or subcutaneously, which has only a very transient action, is not so difficult to account for, especially when consideration is given to the advanced state of fatty infiltration of the liver immediately before the development of symptoms and the progressively rapid disturbance of metabolism by which it is brought about.

When outbreaks actually occur the chief measures that can be resorted to are the use of laxative medicines and if available, the utilisation of fresh green feed (grass, oats, etc.) for the flock, and enforced daily exercise.

We feel sure the development of effective prophylaxis will undoubtedly follow the application of knowledge gained by a more intensive study of the methods of feeding pregnant ewes. An adequate carbohydrate intake must be ensured by a well balanced diet, and a further point, which appears to us to be of paramount importance, is that the condition of pregnant ewes should be ascendingly maintained throughout pregnancy.

References.

1, [11]Russell Greig, J., *Vet. Record*, 1929, IX, 509.
2, [6]Gilruth, J. A., Report of Dept. of Agriculture, N.Z., 1899, 89.
3, 7, [12]Dimock, W. W., Healy, D., and Bullard, J. F., *Journal American Vet. Medical Association*, 1928, LXXII, 511.
4, 9, [10]Marsh, H., *Journal American Vet. Med. Association*, 1929, LXXIV, 724.
[5]Steel, J. H., "Diseases of the Sheep," 1890, 213.
[8]Bowes, H. G., *Veterinary Record*, 1930, X, 703.

Thoroughbred and Hunter Show.

The forty-seventh annual show of the Hunters' Improvement and National Light Horse Breeding Society, held during the past week at the Agricultural Hall, Islington, attracted a greater number of horses than it did last year. Entries numbered 322, compared with 311 last year, and the thoroughbred stallion class, numbering 133, included 35 on exhibition there for the first time. Some noted horses were on view.

Colonel C. Spence-Colby, the president, speaking at a preliminary luncheon, said that in addition to the 322 entries there would be about 50 in the jumping classes, making a total of 370.

With regard to thoroughbred stallions, the number of premiums to be awarded had been increased by the War Office this year from 60 to 75, thus enabling the country to be better supplied than in the past, and putting a very high class horse at the disposal of all breeders at a very low fee. The entry of stallions in the show equalled the record of last year, which, he thought, was very satisfactory. Among them were 35 horses which had not competed before. The type of horse suitable to get hunter stock was hard to find, and he trusted that the new entries would maintain the high standard they had been accustomed to see paraded at the Agricultural Hall in the past.

In the hunters' section the excellent entry of 136 young horses was an increase of 10 over the figures of last year, and the riding classes numbered 53.

The number of exhibits by lady owners increased year by year. This year they numbered 40. The produce class for not less than three young animals by the same sire had an entry of 11 groups, totalling 44 young horses. This class, of comparatively recent date, gave an excellent opportunity of seeing the type of stock a stallion got, and was of great interest to breeders and stallion owners.

For some years the War Office had exhibited types of horses suitable for Army purposes. The animals shown were not picked ones, but were only of good average type, and consisted of one Royal Horse Artillery gun team, officers' chargers, cavalry riders, and artillery light draught remounts.

Clinical and Case Reports.

Rupture of the Vagina by the Penis of the Bull.

By George N. Gould (junr.), M.R.C.V.S., Southampton.

During the last twelve months I have observed this condition on three occasions.

The symptoms were very characteristic. Immediately following copulation the heifer strained and ejected a little blood. Muscular tremors were noticed and she appeared to be in pain.

The straining continued at shorter intervals and a very small amount of sanguineous fluid was noticed to ooze from the vulva. Small quantities of urine were repeatedly passed as a result of the straining.

From the onset of the symptoms inappetence and cessation of rumination were noticed, followed in a day or so by complete loss of appetite.

The heifer appeared to be more comfortable when lying down and straining was then less frequent.

This condition continued for a period of four to six days, and was followed by sudden collapse and death.

Post-mortem examination revealed septic peritonitis consequent upon a small rupture of the vagina at the fornix.

The first case was attended two days after the onset of symptoms. Slaughter was advised, but the owner preferred treatment.

This was attempted by the injection, three times daily, of 200 c.c. Lugol's solution of iodine and the insertion of iodoform pessaries.

The temperature remained about normal until the fourth day, when there was a sudden exacerbation to 106°, followed on the fifth day by a marked remission to 100° and sudden death.

In the second case, which I saw the day following coitus, slaughter was advised. The puncture of the vagina was present in the fornix as in the previous case. In the third case the history was rather interesting. The heifer was served about nine weeks previously, the service being followed by considerable straining and hæmorrhage. The straining continued at intervals for a period of two to three weeks and then abated. She was thought to be in calf quite safely, but again came into œstrum nine weeks after this service and was again served by the same bull.

Immediately following coitus straining occurred, accompanied by hæmorrhage, but the latter was much less than in the previous instance.

The straining was more violent and at much shorter intervals.

I was called to see the heifer five days later, when she was in a state of collapse. Slaughter was advised and *post-mortem* revealed septic peritonitis consequent upon puncture of the vagina at the fornix.

It would appear in this case that at the first service extreme laceration of the mucous membrane of the vagina had occurred—that the heifer recovered from this and that at the second service complete puncture resulted.

In each case the animals involved were non-pedigree Shorthorns of reasonable stature—the bull had been used for many similar heifers with no untoward result. There appeared to be no anatomical abnormality of the vagina in any of the three cases.

An Interesting Sexual Abnormality.

By G. B. Purvis, F.R.C.V.S.
Federated Malay States.

Last month in Malacca I was asked to see a dog which had been ill for about two months. The animal was a male and aged. It was sexually abnormal. The teats were large and resembled those of a bitch which had a litter. The penis at its free extremity showed a small, cherry-shaped and sized protrusion with the urethra opening on its summit. The prepuce was absent, but on one side of the penis was a small shallow invagination about one inch long.

The scrotum was just visible as a slight fulness of skin in the usual site, but it was undeveloped and empty. In the usual position of the left cord could be found a soft body. Underlying the penis but more to the right side, and running anterior to the anterior end thereof was a large hard body below the skin. It was ascertainable by careful palpation that there was no abdominal hernia and what felt like a spermatic cord could be traced back to the right inguinal region. As the patient was near death it was destroyed by injection of chloroform into the pleural cavity.

Post-mortem revealed that the penis was internally of normal structure but underdeveloped. The left testicle was the small soft body felt. The large hard growth was the right testicle. The tunica vaginalis extended forwards from the right inguinal canal to enclose the testis. The latter was normal in external appearance except for size, which was about four inches long by about two in width and depth. On section the testicular substance was seen to be replaced by what appeared to be a neoplasm, but the Institute for Medical Research have reported that an inflammatory condition was present of a chronic character. The accessory sex glands were not examined—I had permission to examine the growth only.

An early correct diagnosis and unilateral castration would doubtless have saved the life of the patient, but it is doubtful if abnormalities should be preserved.

Equine Disease Simulating Botryomycosis.

By Z. Morcos, M.V.Sc., F.R.C.V.S., D.V.H.
Professor of Bacteriology, Cairo Veterinary College.

Case 1. (Horse No. 229.)—Bay thoroughbred horse, Arab; different sizes of tumour-like growths round the girth—the biggest the size of an orange, the smallest the size of a chestnut; hard, majority intact, few with ulcerated top.

Case 2. (Horse No. 103.) Dark Bay Arab; tumours at the withers and near side; size and condition of tumours as in case 1.

Case 3. (Horse No. 220.)—Grey Austrian horse; tumours round the collar region; not pedunculated, firm, small size, lemon-like in shape and dimensions.

Case 4. (Mule No. 1.)—Dark Bay Italian mule; tumours along the sides of the abdomen at the cart shaft region; as before indicated, no neck could be seen joining the

tumour with the body of the animal; various sizes from that of an orange to that of a chestnut.

Case 5. (Mule 304.)—Red Italian mule; tumours round the collar region.

All the five animals were in the same enclosure, but in different stables.

The five animals were *negative* to the mallein test.

Scrapings were aseptically obtained from a freshly-opened tumour from each of the five cases.

Fresh preparations contained no yeast-like organisms. Stained preparations revealed irregular, Gram-positive cocci. This coccus was met with uniformly and solely in the five cases. Cultures were made and a pure *Staphylococcus aureus* was obtained in all the cases.

The staphylococcus obtained was not pathogenic to guinea-pigs or rabbits on subcutaneous inoculation; 48 hours broth culture used, 0·25 c.c. for the guinea-pig and ½ c.c. for the rabbit.

Unfortunately, no young horses were available to scarify the organism isolated to enable one to ascertain the actual relation between equine tumour-like skin lesions and *S. aureus*.

(1928-1929.)

Treatment of Worms in Dogs.

By Z. Morcos, M.V.Sc., F.R.C.V.S., D.V.H.

Post-mortem examinations were made on 40 dogs and all, without exception, were found to harbour both nematodes and platyhelminthes. In two cases out of 40, *Tænia echinococcus* was found.

Fifteen dogs (cross-bred, mature, of varying ages from one to three years) were each given, 24 hours after fasting, a capsule containing 3 c.c. *pure* carbon tetrachloride and four minims croton oil.

The animals were kept under observation for ten days, after which they were destroyed (as stray dogs, in the lethal chamber). *Post-mortem* examination was made and no worms were seen in any of the 15 dogs. While under observation, the animals did not show any nervous manifestations, possibly on account of croton oil driving the carbon tetrachloride so rapidly out of the system.

The experiment, crude as it was, indicated that:—

1. Carbon tetrachloride in 3 c.c. doses, mixed with four drops of croton oil, an average dose to a medium-sized dog, is safe and harmless. *Post-mortem* revealed no apparent pathological changes in the internal organs.

2. Carbon tetrachloride and croton oil mixed together in a capsule form, given after 24 hours fasting, may prove a useful vermifuge for dogs.

(1929.)

R.A.S.E. Show.—The Royal Agricultural Society of England has now issued the Prize Sheet for Live Stock, Poultry, Produce, Implements, etc., at the Show of the Society to be held at Warwick, from Tuesday, July 7th, to Saturday, July 11th. The total value of the prizes offered (inclusive of Champion Prizes, Special Prizes, Challenge Cups and Medals) is £15,213, of which £1,373 represents contribution from the Warwick Local Committee, £3,533 from various Breed Societies and £1,970 from other sources.

Eleventh International Veterinary Congress, London.

August, 1930.

(*Continued from page* 239.)

Theileriases.

By Professor K. F. Meyer.
University of California, San Francisco.

The genus Theileria contains the small piroplasms which multiply by fission or schizigony in the cells of the lymphatic system. It originally included one bovine species—*T. parva*—but a second species, *T. annulata*, was added in 1904, and a third, *T. dispar*, in 1924. In addition, a form is found in sheep and goats called *T. hirca*.

In 1923-24, Brumpt found that the relatively benign *Gonderia mutans* should also be placed in this genus, and while some workers consider it synonymous with *T. parva*, it is tentatively accepted as a valid species under the name *T. mutans*. This species is feebly pathogenic, is readily transmitted by blood inoculation and multiples predominantly in the blood or by few schizonts in the reticulo-endothelial system of the internal organs. *T. annulata* and *T. dispar* resemble each other very closely and if separate, are probably derived from a common stock. *T. parva* multiplies only by schizogony in the internal organs but recent experiments have shown that blood may be infective to other animals. The last three species are all pathogenic and it is becoming increasingly difficult to distinguish between them; moreover, all three show types of infection which cannot be differentiated from those caused by *T. mutans*. Meyer accordingly believes that all are probably races of a common stock which are still in the process of differentiation.

T. W. M. C.

Theileriases.

By P. J. Du Toit, B.A., Dr. Phil., Dr. Med., Vet.
Director of Veterinary Services and Animal Industry,
Onderstepoort, S. Africa.

In this paper, the author reviews the present-day knowledge on the subject of Theileriases, referring to practically all the available literature, and discusses the results of the investigations and observations of the various workers, including his own.

The paper is divided into five sections:—

Section I is a critical review of the literature. In 1897, Robert Koch described "small piroplasms" in the blood of cattle in East Africa, and in 1904, Theiler described the cause of "East Coast Fever" in Southern Rhodesia and South Africa under the name of *Piroplasma parvum*. It was du Toit who, in 1918, suggested the creation of a new family for these "small piroplasms"—Theileridæ. "The essential difference between the Theileridæ and the Piroplasmidæ, is that multiplication in the former takes place in the cells of the lymphatic system by means of a process of schizogeny, whereas, in the latter, multiplication takes place in the blood of the vertebrate host by simple division into two or four."

Since 1904, many observers have described members of this family in cattle, sheep and goats practically all over the world. The following are some of the countries in which such parasites have been noted by the various workers :—South Africa (Theiler, 1904; Gonder, 1910; du Toit); Southern Rhodesia (Koch, Theiler, etc., 1904); N. E. Rhodesia (Turnbull, 1926); West Coast of Africa (Bouet, 1908); Belgian Congo (Broden and Rodhain, 1907); Algeria (Soulie and Roig, 1908), Sergent *et al.*, 1922); Tunis (Ducloux, 1905); (Pricolo, 1914); Sudan (Mason); Egypt (Egyptian Fever—Bitter, 1905); Dreyer, 1903; Mason, 1913 and 1922; Littlewood, 1915; Doyle, 1924, etc.); Morocco (Veln and Eyrand, 1915); India (Lingard, 1905; Holmes, Baldrey, Cooper, etc.); Australia (Dodd, 1910); Japan (Miyajima and Shibayama, 1906); Greece (Cardamatus, 1912); Bulgaria (Angeloff, 1918); China (Martini, 1907; Eggebrecht, 1918); Palestine (Gilbert, 1925 and 1927) and several others.

Section II deals with the " Theileriases of Cattle." Four distinct species of Theileria of cattle are recognised, *viz* :—

(*a*) ***Theileria parva*** (Theiler, 1904).
(*b*) ***Theileria dispar*** (Sergent *et al.*, 1924).
(*c*) ***Theileria annulata*** (Dschunkowsky and Luhs, 1904).
(*d*) ***Theileria (Gonderia) mutans*** (Theiler, 1906).

These are arranged in their order of virulence.

A description of the disease produced by each is given and includes etiology, transmission, symptomatology, mortality, pathology and immunity.

Section III deals with the " Differentiation of the Theileriases of Cattle." The section may be summarised in a table appearing on pp. 17 of the article. The table is reproduced below.

	Th. parva. A.	*Th. dispcr.* B.	*Th. annulata.* C.	*Th. mutans.* D.
Endoglobular Forms	Over 80% rod-shaped, less than 20% round or oval	Less than 10% rod-shaped, more than 90% round or oval	About 20-30% rod-shaped, about 70-80% round or oval	About 45% rod-shaped, about 55% round or oval
Koch's bodies	Always present, usually very numerous	Always present, in severe cases usually easily demonstrated	Only present in acute cases but then very numerous also in the blood	Extremely rare; in most cases cannot be found at all
Persistence of Parasites	Disappear completely after recovery	Disappear completely after recovery	Parasites persist in blood throughout life	Parasites persist in blood throughout life
Transmission with blood	Possible, but very difficult	Easy, even with small quantities	Easy, even with small quantities	Easy, even with small quantities
Natural Transmission	Through *Rhipicephalus spp.*	Through *Hyalomma mauretanicum*	Unknown	Through *Rhipicephalus spp.*
Average incubation period	About 13 days	About 21 days	More than 20 days	About 30 days
Type of infection	Always acute	Always acute	Chronic, but may then become acute	Always chronic
Anæmia	Absent or only slight anisocytosis	Present; anisocytosis, polychromatophilia	Present in acute cases	Absent or slight
Icterus	Very rarely present	Frequently present	Sometimes present	Absent
Hæmaturia	Absent	Sometimes present	Absent	Absent
Mortality	90-100%. In enzootic regions less	About 20%	5-20%	Nil
Lymph glands	Always swollen	Swollen	Often swollen	Normal
Spleen	Normal or only slightly swollen	Very much swollen	Very much swollen in in acute cases	Normal
Kidneys	" Infarcts " present	" Infarcts " present	Small hæmorrhages present	Normal
Liver	Only microscopic changes	Swollen	Swollen	Normal
Abomasum and intestines	Ulcerations present	Ulcerations present	Ulcerations present	Normal
Hæmorrhages	Absent	Present in heart and other organs	Often present	Absent
Immunity	Solid and sterile	Solid and sterile	No immunity, but state of premunition	No immunity, but state of premunition

Section IV deals with the Theileriases of sheep and goats. It appears that two infections occur : (*a*) *Theileria ovis* infection and (*b*) *Theileria* (*Gonderia*) *recondita* infection.

The comparison made in the Table reproduced on page 261 will serve as a guide to differentiation.

In *Section V*, the whole position regarding Theileriases is reviewed. The author deals with the discussion in supplying answers to two questions :—1. Are the parasites causing these infections of genuine " good " species? ; and 2. If so, are these the only species of Theileria occurring in cattle?

It appears from the paper that there has been considerable confusion in the recognition of the various species. The most doubtful grouping is the classifying of *Theileria annulata* and *Theileria mutans* as two separate species. It is possible that many species exist between the highly virulent *Theileria parva* and the avirulent species of *Theileria mutans*. Most of the species described fall into the forms named above and it is suggested that for the present, at least, the above classification should be adopted.

T. D.

	Th. Ovis.	*Th. (Gonderia) recondita.*
Endoglobular Forms	Ring and oval forms as well as bacillary. Latter usually predominate ...	Round and oval forms predominate.
Koch's Bodies	As East Coast fever. Agamonts and gamonts can be distinguished. Occur free and intracellular in liver, spleen, lymph glands, kidneys and bone marrow	Unknown till described by Lestoquard (1929).
Transmission	Easily transmissible with blood ...	Easily transmissible with blood.
Natural Transmission	Not known. *Rhipicephalus bursa* suspected in Serbia	Not known.
Type of Infection	Acute attack	Mild and chronic.
Symptoms...	High fever, petechiae on mucous membranes, anæmia, icterus usually and sometimes hæmoglobinuria. Recovery slow	Nil.
Mortality	Fairly high. 46% recorded in goats ...	
Pathology...	Swelling of lymph glands, spleen and liver. Hæmorrhages under epicardium and endocardium. Red and white areas in kidneys. Hyperæmic ecchymoses and ulceration in intestine	Nil.
Immunity...	Appears solid. Parasites disappear after recovery. Relapses do not occur ...	Infected animals in state of premunition. Parasites probably persist in the blood always.

Theileriases.

By W. L. Yakimoff, Dr. Med. and Dr. Vet. Med.
Professor of Parasitology, Veterinary High School, Leningrad, U.S.S.R.

The knowledge on the Theileriases collected within the last thirty years or so has become so vast that there is a crying need to-day of subjecting the enormous material thus accumulated to a critical analysis. Recent researches in this domain by South African (Theiler, and others), Algerian (Ed. Sergent and collaborators), French (Brumpt) and Russian (Dchunkowsky and Luhs, Yakimoff and Byeluvin, Oboldouyev and Galouzo) workers revealed so many new facts that nothing short of a complete revision of all aspects of the question would meet the case. The disease was recognised in many countries—Syria, Asia Minor, Africa, Balkan peninsula, Caucasus, Turkestan, India, Indo-China, China, Dutch East Indies, Eastern Siberia—and is known to cause enormous losses among live-stock in South Africa, Algiers, Turkestan and Transcaucasia.

A short historical survey follows, in which the author recounts the discoveries made in various countries mentioned above between 1897 and 1930.

Research work carried out during recent years has thrown more light upon the question of the identity and comparative frequency with which different parasites causing Theileriases in various countries are met in the field. The author sets out, in the table given on next page, various data important for the identification of the Theileriases occurring in different countries. In the text detailed history of each variety is given.

The presence of the so-called " blue bodies " (Koch, 1903) may be of diagnostic value if they are found in the peripheral blood, lymphatic glands, bone-marrow, or parenchymatous organs. The opinion held hitherto, that it was impossible to infect healthy animals with the peripheral blood of infected subjects, after the experiments carried out by Ed. Sergent and his collaborators, and those of Theiler, must be discarded, as it was proved by these investigators that experimental infection succeeds if the " blue bodies " are present in the peripheral blood of host.

In South Africa, Theiler and Lounsbury found that *R. appendiculatus, R. evertsi, R. nitens, R. capensis* and *R. simus* were the carriers of *T. parva*. Ed. Sergent and collaborators have proved that the carrier of the latter parasite in Algiers was *Hyalomma mauritanicum*, while Galouzo and Bernadskaya proved the rôle played by *Hyalomma ægypticum* with regard to *T. annulatum*.

General opinion prevails to-day that " sterile immunity " (natural immunity of animals that never passed through an attack of the disease?) does not exist, although the animals recovered from an infection acquire the active immunity for the remainder of their life.

Vaccination according to the method of Theiler is not generally practised on account of heavy losses among animals inoculated with blood and serum of infected subjects; however, Ed. Sergent and collaborators, modifying the method somewhat, succeeded in producing a less virulent strain, which caused only a slight attack of the disease, the rate of mortality being between two and six per cent. Treatment with different drugs so far produced no practical results.

The types *parva* and *mutans*—according to du Toit—are characteristic for two species—*Theileria* and *Gonderia*, but Brumpt (1923) disagreed with that opinion; the difference consists in the presence of " blue bodies " in the former and their absence in the latter; as Theiler and Grof found the " blue bodies " with *Gonderia* infection they thought it necessary to revert to the old name—*T. mutans*. The name *Gonderia* was accepted by many authors: Ed. Sergent and collaborators, H. F. Meyer, Yakimoff and collaborators, Oboldouyev and Galouzo, and others.

Theileriases occur but seldom in sheep and goats; up to now only four undoubted cases of infection have been recorded. Data are lacking on the question of vaccination and treatment; the vector is as yet unknown.

H. F.

TABLE.

Incorporating various Data important for the Identification of the Theileriases occurring in different Countries.

Species.	Annular forms.	Oval forms	Rod-Shaped forms.	Comma-shaped forms.	Cross-shaped forms.	Anaplasmoid forms	Proportion of rod-shaped form to the round forms.	Authors.
	%	%	%	%	%	%		
Gonderia mutans	12·0	36·3	43·0	—	2·0	0·4	1 : 1·12	Ed. Sergent and collaborators, 1927, 1929
	48·3							
Theileria parva	12·3	3·8	81·4	—	0·3	2·2	1 : 0·19	
	16·1							
Theileria dispar	50·0	41·6	7·7	—	0·2	0·7	1 : 11·8	
	91·6							
Theileria turcestanica	43·0	47·2	6·6	2·0	0·2	1·0	1 : 11·0	Oboldouyev and Galouzo, 1928
	90·2		8·6					
	50·4	36·1	11·7	1·8	—	—	1 : 6·3	Yakimoff, 1930
	86·5		13·5					
	61·8	20·2	11·2	6·7	—	—	1 : 4·5	
	82·0		17·9					
Theileria annulata — Azerbeidjan	36·7	56·8	4·6	1·7	—	—	1 : 14·8	Yakimoff and collaborators 1929, 1930
	93·5		6·3					
Dagestan	62·5	33·3	4·1	—	—	—	1 : 23·3	
	95·8							
Armenia	67·7	9·7	9·7	12·9	—	—	1 : 3·5	
	77·4		22·6					
Northern Caucasus	46·5	41·0	12·5	—	—	—	1 : 7·0	
	87·5							
	69·2	15·1	4·1	11·5	—	—	1 : 5·4	
	84·3		15·6					
	53·0	24·4	10·2	12·2	—	—	1 : 6·2	
	77·4		22·4					
	62·6	22·9	8·1	5·4				
	85·5		13·3		0·3	0·3	1 : 6·3	
Tripoli	96·7	—	3·3		—	—	1 : 29·0	According to Carpano's drawings, 1915.— Yakimoff, 1930
	94·1		5·9		—	—	1 : 15·1	
Tunis	81·0		19·0		—	—	1 : 4·2	According to Brumpt's drawings, 1923.— Yakimoff, 1930

Abstracts.

[**The Value of the Intra-palpebral Tuberculin Test for the Diagnosis of Tuberculosis in Cattle.** Selter, Professor H., and Dr. Blumenberf, 1930, *B.T.W.*, xxxxvi, N. 37, p. 597-9.]

This is a communication from the Hygienic Institute in Bonn. According to Zwick and Witte (1928) the number of errors after the subcutaneous thermal test varies from 2-8 per cent., whereas similar figures for the ophthalmic test are from 1·6 to 13·4 per cent. The authors carried out a series of experiments at various farms and slaughter-houses in Germany on 434 cattle and over 150 calves, employing for injection 1 c.c. of 20 per cent. tuberculin for the intra-palpebral test. The results obtained indicate that the test is quite reliable, the negative reaction—provided the infection did not occur too soon before the test—being a proof of the absence of tuberculosis. A slight swelling of the eyelid unaccompanied by redness of the conjunctiva is characteristic for the negative reaction; reddening of the conjunctiva without the simultaneous swelling of the eyelid must be also regarded as non-specific. As such unspecific reactions occur with other tests, the authors thought that in doubtful cases the injection should be repeated in the space of a few days: the pronounced reaction after this inoculation points to the existence of tuberculosis.

H. F.

[**Technique of the Rapid Whole-blood Agglutination Test for the Detection of Pullorum Disease in Hens.** Miessner, H., and Schutt, G., *D.T.W.*, 1931, 39, 1, 3-4.]

The test is carried out on the farm and preferably in the months August to October. It allows of an immediate diagnosis, so that carrier hens may be at once separated (and with one handling only) from the clean birds. The technique is as follows: A drop of test fluid (*B. pullorum* suspension) is placed on a clean, fat-free, glass slide; a drop of blood, obtained by scratching the comb or wattles, is rubbed up in this test fluid and the whole slightly spread out. The slide is tilted from side to side, further mixing the fluid. Agglutination, in positive sera, usually commences in a few seconds, at latest after one minute. The reaction, which consists in the formation of floccules, occurs more quickly if the slide be gently warmed. It is best observed against a dark background. The test fluid is made by suspending 24-hour agar slope cultures in phenol saline (0·5 per cent. phenol, 0·8 per cent NaCl). The suspension should be as heavy as possible. Formalin (0·1 per cent.) may be used in place of carbolic acid. Each batch of antigen should first be tested on known positive hens. Kept in a cool, dark place it retains its effectiveness for at least two months. Prior to use it should be left for one hour at room temperature.

A better blood yield can be obtained from the comb (best at the posterior part) than from the wattle. The drop of blood must, at least, be as big as the drop of antigen.

Pseudo-agglutination sometimes occurs. The floccules tend to stick to the bottom of the slide, whilst in true agglutination they clump together and "swim" in the fluid. This false result is usually due to scurf or feathers gaining access to the fluid. Pseudo-agglutination sometimes occurs in hot sunny days (over 20° C.), and in a low temperature the true reaction is very much delayed.

J. H. M.

[**New Drug for Liver-fluke Disease.** Marcotel, G., *Rév. Vétérinaire*, 1930, 82, 657-60.]

Male fern is dear, often deficient in activity and sometimes dangerous in its action. Of a number of drugs investigated, one, "Vitan," proved to be very satisfactory. This is a Bulgarian product, sold in gelatine capsules of cherry size and containing the following drugs—benzol 78, vaseline 5, camphorated alcohol 5, oil of turpentine 5. The price is about one-fifth of that of male fern.

The author experimented with the drug on 35 sheep with constant success and without accident. The worm eggs disappeared from the fæces in 3-4 days.

To be efficacious, Vitan should be administered as follows:—

(1) About April, before putting the sheep out to pasture. This will expel the flukes from infected sheep and prevent them soiling the ground.

(2) About five months later (September) because this time elapses before the eggs develop into adult flukes. One must also recognise that a few sheep will have escaped the first treatment; their flukes will lay eggs which will take two to three months to give rise to the cercariæ, which, in their turn, will take two to three months to transform themselves (after ingestion) into adult distoma (total time—five months). If one expels them before this time one is sure they will not be able to produce eggs.

(3) The third treatment two to three months later (about November), after bringing the sheep in from the fields, to destroy the flukes which have developed from cercariæ ingested after the second treatment.

Thus by three treatments one expels the distoma from the animals almost immediately after their arrival in the liver, before they have had time to become adult egg-laying worms.

The author considers that if all the farmers in one locality undertook this treatment in a combined effort it would be unnecessary to repeat the procedure in following years.

J. H. M.

[**Paratyphoid Infections in Fur-bearing Animals.** Meyn, A., *D.T.W.*, 1930, 38, 36, 565-7.]

Paratyphoid infections were noted in nine silver foxes, one mink, and three nutrias. From the organs of one fox, the mink and the three nutrias *B. enteritidis* Breslau, and from the remaining foxes *B. enteritidis* Gärtner was isolated. The sources of infection were not definitely established in any case. In the nutrias, it was apparently a secondary infection, developing on a marked liver fluke infestation. Two of the foxes were old and seven were younger animals.

J. H. M.

Colonial Veterinary Services.

Live Stock in Ceylon.

A paper by Mr. M. Crawford, M.R.C.V.S., Assistant Government Veterinary Surgeon, Ceylon, appears in *The Tropical Agriculturist*, Ceylon, of December, 1930.

The writer points out that during 1929 Ceylon imported live animals and animal products for food to the value of over half a million pounds.

One hundred thousand goats, and 20,000 sheep arrived from India and Aden; and frozen tinned and salted beef to the value of £27,000 was introduced. Poultry imports were valued at over £70,000.

It is clear, therefore, that this Colony has much scope for developing its stock industry. There exist, however, certain obstacles which require amelioration, of which the more important are disease, lack of good breeding stock, improper management of both stock and pasture, and, in connection with sheep and goats, the fact that Colombo butchers are financially committed to Indian traders, who import and so discourage the use of local animals.

There are one million cattle and half a million buffaloes on the Island, the latter being used for cultivation.

The writer recommends the following steps which should be taken to encourage an improvement in these breeds:—

1.—Elimination of the old and unprofitable stock.

2.—Improvement of pasture by clearing off the scrub jungle.

3.—Growing of fodder crops for use in periods of drought.

4.—Better feeding of calves: the progeny of good milking mothers are apt to be starved to meet the owner's needs, while those of bad milkers survive.

5.—Early castration of inferior quality bulls.

6.—Reservation of the best males for breeding instead of for transport.

Mr. Crawford mentions that, despite the number of stock in the Colony, artificial manures to a value exceeding £1,000,000 were imported.

In Parliament.

The following questions and answers have been recorded in the House of Commons recently:—

Indian Army (Mechanisation).

Sir W. Brass asked the Secretary of State for India to what extent progress of mechanisation in the Indian Army compares with the progress made in mechanisation in this country?

Mr. Benn: I am circulating a statement with regard to the progress made in India. Any comparison between what is being done in India and in this country would be misleading as the conditions are essentially different.

Following is the statement:—

Progress of Mechanisation.
Army in India.
February 19th, 1931.

1.—The following are completely mechanised:—
1 Field Brigade, Royal Artillery.
2 Divisional Ammunition Column, Royal Artillery.
1 Field Artillery Ammunition Column.
1 Field Troop, Sappers and Miners.
1 Corps Signals.
1 Cavalry Brigade Signal Troop.
1 Cavalry Brigade Train.
2 Divisional Trains.

2.—The following are in progress of mechanisation and completion is expected by the end of 1930-31:—
1 Anti-Aircraft Battery.
1 Field Troop, Sappers and Miners.
1 Corps Signals.
1 Cavalry Brigade Signal Troop.
1 Cavalry Brigade Train.

Sir W. Brass: Is the right hon. Gentleman satisfied with the progress that is being made?

Mr. Benn: I think the hon. and gallant Gentleman will find the statement quite satisfactory.

* * * * *

Royal Veterinary College.

Colonel Sir George Courthope asked the Minister of Agriculture whether a grant will be available from the Development Fund towards the cost of reconstructing the Royal Veterinary College; upon what conditions it will be made; whether any further grant will be available from other funds; and whether he is aware that in the event of the total sum required being unobtainable the college will not be able to continue its educational work?

The Minister of Agriculture (Dr. Addison): The Treasury have sanctioned grants from the Development Fund amounting in all to £150,000, provided that the Governors obtain from other sources a sum of £100,000. Other conditions are attached to these grants, and I shall be happy to supply the hon. and gallant Baronet with a statement of them if he so desires; but they raise no difficulty, and have been accepted by the Governors. The hon. and gallant Baronet is no doubt aware that the Governors have themselves raised a sum which I understand is now slightly above £50,000. I can only add that I am well aware of the difficulties of the college.

Mr. Hannon: Is it not deplorable that a great national institution of this character should be dependent for its existence on voluntary subscriptions?

Dr. Addison: I share the view of the hon. Member, but I have to deal with the situation as it is.

Sir G. Courthope: Can the right hon. Gentleman say whether the application to which he referred in the House on a previous occasion, for a grant from the Pilgrim Trust, has been successful?

Dr. Addison: I understand not.

Vice-Admiral Taylor: Has sufficient money been raised privately to enable the reconstruction work to be carried out, as I understand that it must take place by July?

Dr. Addison: I understand that there is no use beginning the work of reconstruction until at least £250,000 is in sight. That is not the case at present, and therefore there is no use proceeding. The hon. Member is aware that when this place has been rebuilt, as it ought to be, the expenses of maintenance and salaries will be very greatly increased.

Brigadier-General Clifton Brown: Is the right hon. Gentleman aware that great efforts are being made by masters of hounds in sending round appeals to their followers, and otherwise by private people, on behalf of this institution, and, in view of the fact that there is a real endeavour to collect this money will he see that the subscription list is kept open and endeavour to increase it?

Dr. Addison: I have not closed the subscription list, but I understand that the response from masters of hounds has been much less than was expected.

Brigadier-General Brown: Give them time.

* * * * *

Tuberculosis.

Lieut.-Colonel Fremantle asked the Minister of Health when the promised memorandum on human and bovine tuberculosis will be published?

Mr. Greenwood: The memorandum is now in proof, and I hope to be in a position to publish it shortly.

* * * * *

Graded Milk (Licence Fees).

Mr. Hurd asked the Minister of Health if he has considered the suggestion submitted to him that in order to encourage the supply of pure milk the Ministry should

abolish the licence fees now demanded from producers who apply for permission to sell certified or grade A milk; and if he will adopt this suggestion?

Mr. Greenwood: I am not at present satisfied that the abolition of the licence fees for graded milk would have any appreciable effect upon the supply; but I will consider the matter in consultation with my right hon. Friends the Chancellor of the Exchequer and the Minister of Agriculture and also with representatives of local authorities when opportunity occurs for the general revision of the Special Designations Order.

. . . . .

Foot-and-Mouth Disease.

Major Glyn asked the Minister of Agriculture what is the exact position with respect to outbreaks of foot-and-mouth disease during the past 12 months in Great Britain; and how much money has thus been paid out?

Dr. Addison: During the 12 months ended January 31st last, there were ten outbreaks of foot-and-mouth disease in Great Britain distributed between six separate centres. Four of these outbreaks occurred in the West Riding of Yorkshire, two in the North Riding, two in Surrey, one in East Sussex and one in Bedfordshire. A sum of £3,184 was paid in compensation for animals slaughtered in connection with these outbreaks.

Royal Army Veterinary Corps Point-to-Point Association.

1.—The annual race will be run this year at the Hambledon Hunt Point-to-Point Races at Liss, Hants (three miles from Bordon—three-quarters of a mile from Liss Station, Southern Railway), on April 11th, 1931.

2.—Conditions of the race:—

The race, which is for the Royal Army Veterinary Corps Point-to-Point Challenge Cup, is open to serving and retired officers of the Royal Army Veterinary Corps and Territorial Force. Retired temporary officers of the Corps may be permitted to enter as honorary members subject to acceptance by the Committee.

For horses the property of, or Government chargers and troop horses hired since March 1st, 1931, by officers R.A.V.C., which have been regularly and fairly hunted with a recognised pack of hounds or military drag-hounds.

No horse is eligible to run that has ever won a race of any description (Point-to-Point, *bona fide* Hunt and Military races excepted).

Winner to receive Challenge Cup, 75 per cent. of sweepstakes and replica of the cup. Second to receive 25 per cent. of sweepstakes.

To be ridden by those qualified to enter.

Weight: 12 st. 7 lb.

Winner of a Point-to-Point, *bona fide* Hunt or Military race since January 1st, 1929, to carry 7 lb. extra; of two or more such races, 10 lb. extra.

Entrance Fee: One Sovereign.

3.—Arrangements for the stabling and forage of horses and accommodation of grooms at Aldershot or Bordon will be made on application to the Hon. Secretary at the time of entry.

4.—Financial assistance will be given to officers entering, whose horses are normally stabled outside a radius of 30 miles from Liss, such assistance not to exceed £4.

5.—A Corps Tea Tent is available on the course for the use of officers and their friends. Tickets, price 2s. 6d. each, can be obtained in advance from the Hon. Secretary or from R.A.V.C. Tea Tent Office on the course. It is requested, however, that tickets be purchased one month prior to the meeting in order that some idea of the number to be catered for may be obtained.

6.—In order to ensure the success of the race the Committee ask that all officers who are able to do so will make every endeavour to enter a horse. Entries, giving name of horse (Army Number in case of a Government charger or hired troop horse), colour, age, sex, owner and name of Hunt issuing the certificate, together with entrance fee, should reach the Hon. Secretary on or before April 4th, 1931, on which date entries close. Address of Hon. Secretary: Station Veterinary Hospital, Aldershot, Hants.

N.V.M.A. Divisional Reports.

Lancashire Division.*

Meeting at Liverpool.

An unusually large attendance of members and visitors was attracted to the General Meeting of the Lancashire Division, which was held in the Surgery Lecture Theatre, Liverpool University, on Wednesday afternoon, January 21st, 1931.

The President (Mr. E. H. Curbishley) occupied the chair, and there were also present (*Members*): Messrs. F. A. Ball, H. G. Hewetson, G. H. Locke, O. A. Ducksbury, R. P. Holmes, T. Millington, C. Tracy, A B. Mattinson, J. Cochrane-Dyet, H. Burrow, G. O. Davies, H. T. Matthews, T. Wilson, J. McLean, H. H. Aldred, E. J. Burndred, R. Hughes, W. Woods, S. H. Gaiger, William Tweed, J. O. Powley, K. D. Downham, W. Kendrick, C. T. Trevers, P. T. Lindsay, J. Spruell (Hon. Secretary), G. Mayall, W. Fowle, and A. W. Noel Pillers (Hon. Treasurer); (*Visitors*): Messrs. A. Walker, L. T. Tullis, G. D. Leonard, G. H. Mills, J. H. Wynne, S. R. Chatha, T. W. Woodhead, A. Mather, J. H. Morris, E. S. Fuad, E. W. Marshall, N. B. Sidhorn, C. Crompton, E. D. Jenkins, J. L. Dalzell, J. Dyson, E. A Pearce, and J. T. Taylor.

The minutes of the previous meeting were taken as read.

The Secretary intimated that apologies regretting inability to attend the meeting had been received from Messrs. R. C. Locke, P. Manuel, J. W. Brittlebank, J. Holroyd, J. Abson, J. K. Shaw, E. F. Wood.

Obituary.—The Chairman said the next matter which called for their attention was a sad and regrettable one, *viz.*, the death of an old and tried member of the Society, in the person of Mr. Noar, of Bury, who had passed away since the last meeting of the Division. Unfortunately, owing to the short time that had elapsed between receiving intelligence of Mr. Noar's death and the interment, he (the Chairman) had been unable to carry out his intention of attending the funeral on behalf of the Society. He invited the meeting to pay a tribute of respect to the memory of their "old friend" by standing in the usual way.

Mr. Locke, seconding this, stated that he had attended the funeral, representing the Division.

Those present duly responded.

Nomination for Membership.—Mr. H. Davies, of Knott Mill, Manchester, was nominated as a member.

Election of Hon. Associate.—The Chairman said the next item on the agenda, *viz.*, "Election of Hon. Associate—Henry Sumner, Esq., M.R.C.V.S."—was one with which he experienced very great pleasure in being associated. (Hear, hear.) As the wording of the item indicated, it was proposed that the Association should recognise the great worth and value of "an old friend and elder Brother" of theirs, who had for a very long time been a member of the Society. It was felt by the Council of the Division that a fitting recognition ought to be made in some way of Mr. Sumner's work both for the Society and for the veterinary profession as a whole, and it was therefore proposed that Mr. Sumner should be made an Hon. Associate of the Society. (Hear, hear.)

* Received for publication February 17th, 1931.

Mr. R. Hughes seconded, saying Mr. Sumner had been such an example to all the members of the profession, and had done so much for the Lancashire Veterinary Medical Association, and also for the Council of that body, that he (the speaker) was very pleased it had been seen fit to honour Mr. Sumner with that proposed recognition. (Hear, hear.)

Mr. W. Woods supported.

The Chairman added that he was sure it would be the wish of the meeting that Mr. Sumner's appointment as an Hon. Associate should be made unanimously.

The proposition was carried with acclamation.

New Rule.—The meeting next considered the following proposed new Rule, *viz.* :—

"The President and Council jointly shall arrange for suitable papers, addresses, discussions and demonstrations to be presented or initiated by a Veterinarian, Scientist, or other learned gentleman at the meetings of the Association, and the President shall undertake all necessary correspondence in regard to same."

The Chairman, in a brief explanation of the objects sought to be attained by the proposed new Rule, observed that it seemed to him advisable that it should be set down in perfectly plain and straightforward terms that the Council, as a whole, should help the President to formulate the programmes.

After discussion and amendment, the rule was adopted in the following form :—"III (*a*) The President and Council jointly shall arrange for suitable papers, addresses, discussions and demonstrations to be presented on veterinary science, or other scientific subjects, at the meetings of the Association, and the President shall undertake all necessary correspondence in regard to the same."

The following proposed new rules were referred back to the Council of the Division for reconsideration :—

"XVI (*a*) In the manner prescribed in Rule XVI and subject to the same conditions and privileges (except that they shall remain subscribing members), the Association may elect Honorary Councillors, who shall be entitled to receive notice of all Council meetings and to attend and vote at same.

"XVI (*b*) Members to be eligible for election as Honorary Councillors must be or must have been office-bearers and have been members of the Association for a period of not less than 15 years."

Election of Office-bearers and Council.

President.—The Chairman proposed as his successor in the Presidency of the Association, Mr. J. O. Powley, M.R.C.V.S. (Superintendent Inspector, Ministry of Agriculture), saying he regarded Mr. Powley as a gentleman who was particularly fitted to fill the position, with both distinction and honour to himself, and benefit to the Society. (Hear, hear.)

Mr. Woods seconded, observing that he did not think the resolution needed any words of his to commend it to the cordial acceptance of the meeting. They all knew Mr. Powley, and they all respected him very much. (Loud applause.)

The proposition was carried with acclamation.

Vice-Presidents.—The retiring Vice-Presidents were Messrs. W. G. Burndred, P. T. Lindsay and J. O. Powley, and the last-named having just been elected to the Presidential position, Messrs. Burndred and Lindsay were re-elected, and Mr. Curbishley was appointed *ex-officio*, to fill the vacancy caused by the elevation of Mr. Powley to the principal Executive position in the Association, the resolution making the appointments being moved by Mr. Mattinson, and seconded by Mr. Locke.

Hon. Secretary.—The Chairman said he did not suppose anybody present would desire to nominate any other person than Mr. Spruell, who so ably discharged all the duties devolving upon him as Hon. Secretary of the Association. Nobody really appreciated the amount of writing the Hon. Secretary had to do, and how much labour he was always being called upon to devote to the business of the Society.

Mr. Tweed proposed the re-appointment of Mr. Spruell as Hon. Secretary.

Mr. R. Hughes seconded, and the resolution was carried with applause.

Hon. Treasurer.—Mr. Powley proposed the re-election of Mr. Pillers as Hon. Treasurer of the Association for the ensuing year.

Mr. H. H. Aldred seconded, and the resolution was carried with acclamation.

Hon. Auditors.—Messrs. T. Dobie and J. H. White were re-elected as Hon. Auditors.

Council.—After some discussion, and with a view to carrying out the generally-expressed feeling of the meeting :

The Chairman proposed the re-election of the Council *en bloc*, for the ensuing year only, saying he did so with a view to the reorganisation of the Council after there had been discussions for the framing of new Rules.

Mr. Mattinson seconded, and the motion was carried unanimously.

The names of the re-elected Councillors are as follows : Messrs. H. H. Aldred, J. W. Brittlebank, F. G. Edwards, Professor H. Gaiger, J. Holroyd, T. Wilson, F. Hopkin, G. H. Locke, W. Woods, and J. H. Wright.

Representatives to the Council of the N.V.M.A.—The Chairman stated that they were entitled to four members on the Council of the N.V.M.A., and the gentlemen who were willing to continue to represent the Society in this capacity were Messrs. J. W. Brittlebank, S. H. Gaiger, J. O. Powley, and W. Woods, with Mr. Spruell, as Hon. Secretary, *ex-officio*. He (the Chairman) said he did not suppose there would be any question about the re-election of these gentlemen, because they were put to considerable expense in going to the meetings. From the chair he proposed their re-election.

Mr. R. Hughes seconded, and the proposition was carried *nem. con.*

Royal College Candidates.—With regard to Candidates for the Council of the Royal College of Veterinary Surgeons, the Chairman explained that there were two coming out this year, and who were eligible for re-election ; they were Mr. Holroyd and Professor Gaiger, and it was hoped that those gentlemen would go back to Red Lion Square. All that was required to be done in the matter was for some member to propose that the Association contribute to the publication of an election circular, in conjunction with such other Societies as agreed to act with them in the matter.

Mr. G. Edwards made the appropriate proposition.

Mr. Hughes seconded, and said he could testify to the regular attendance of Professor Gaiger and Mr. Holroyd, both of whom devoted a great deal of time and service to this work.

The resolution was carried unanimously.

Scheduled Animal Diseases.

Mr. Powley, at the invitation of the Chairman, addressed the meeting on the subject of "Differential Diagnosis of Some of the More Important Scheduled Animal Diseases," in connection with which he exhibited a number of lantern slides and specimens, an opportunity being afforded the members of closely examining the specimens during the conversational interlude which now forms a regular item on the agenda for the periodical meeting of the Division.

To the ensuing discussion contributions were made by Professor Gaiger, Messrs. Tweed, Cochrane-Dyet, Hughes, Wilson, Matthews, Pillers, Kendrick, Downham, Davies, and Mattinson.

Following Mr. Powley's reply to the main points that emerged during the discussion, he was cordially thanked, on the motion of Mr. Pillers, seconded by Mr. Burndred for what was described as his "helpful lecture and demonstration," and the proceedings terminated with the passing of a vote of thanks to the University Authorities for the use of the lecture hall for the purpose of the meeting.

At the termination of the meeting the members and visitors took tea together.

J. Spruell, *Hon. Secretary.*

Yorkshire Division.*

Mr. George Bowman's Presidential Address at Leeds.

A meeting of this Division was held in Leeds on January 30th, 1931, and was rendered noteworthy by the Presidential address of Mr. George E. Bowman, who, at the last meeting, was elected to the chair to mark the completion of his fifty years' membership of the Society. The attendance book was also signed by the following members: Messrs. J. C. Gaunt, H. Pollard, S. E. Sampson, W. A. Campbell, J. W. Procter, H. G. Bowes, J. A. Dixon, F. Hallilay, E. F. McCleery, W. Crawford, G. Whitehead, H. W. Good, W. R. McKinna, E. T. Hardwick, J. McKellar, R. S. Smyth, J. H. Gillespie and S. Sharp (Hon. Secretary).

Apologies for absence were intimated from Messrs. A. McCarmick, D. S. Rabagliati, J. Abson, G. C. Barber, G. H. Pollock and J. Clarkson.

The minutes of the last meeting were taken as read and approved.

Cancer Research.—The Secretary read a letter, a copy of which had been sent to all members by the Cancer Research Department of Leeds University. This letter asked for the continued support of veterinary practitioners in sending to their experimental station animals suffering from malignant growths which might be suitable for radium treatment.

Colonel Bowes said he had the honour to be appointed to the Cancer Research Department as consulting veterinary surgeon; he appealed to members to take every opportunity of supporting the very important work being carried on. Unless a certain number of patients were received it was found to be a difficult matter to retain the valuable radium needles for the work. He stressed the fact that the animals were kept in the best of conditions and that owners need have no anxiety as to the way in which they were treated. Any animal with any type of superficial malignant growth was suitable for the work.

Mr. Bowman supported the remarks made by Colonel Bowes and said he hoped that practitioners would get into touch with the Cancer Research Department when suitable cases came to their notice.

Presidential Address.

Mr. George E. Bowman said: It has always been a rule that a President shall address a few words at his first meeting. Consequently, I propose to make a few remarks which I hope will be of interest to you; at the same time I can assure you I am not going to bore you with a long address.

I should first like to convey to you my sincere thanks for electing me to the chair of this very important Division of the N.V.M.A. It is an honour I very much appreciate. Having joined this Society in January, 1881, I can assure you I have seen very many changes both in this Society and the profession. I feel that I am such an old member that I really have no business in this chair, for I know there are many young men who are much more fitted to fill it than I am. Nevertheless, I am here and I will do my best to make my year of office a success. I know you will all give me every assistance and support to carry out the duties. I trust there will be some interesting and instructive papers and that all of you will bring forward interesting cases and *post-mortem* specimens, for they enhance the value of the meetings and bring out experiences for the benefit of other members.

I should now like to give you some idea of how things have changed during the last 65 years. When I first thought of joining the profession I left school at 16 and was apprenticed with my brother John for four years. My father had then given up his practice and kept on his two farms; consequently, I had every chance of seeing practice and becoming a good horseman, as he always kept hunters and steeplechase horses. After leaving College, I joined my brother Tom at Sledmere (I may just say here that he was one of old Professor Dick's first pupils.) I stayed at Sledmere for ten years, and then came to Leeds in January, 1881. During my stay at Sledmere, Sir Tatton Sykes bred "Doncaster" that won the Derby in 1873. Lily Agnes was also bred during my stay there and bred, I think, the best horse that ever looked through a bridle—Ormonde. Since I came to Leeds in 1881, there have been very many changes. At that time there were 700 or 800 tram horses, 300 to 400 'bus horses, one brewery had about 100, Leeds City Brewery 36, Kirkstall Brewery 32, Nicholson and several other firms a like number. We also had from 80 to 100 pairs of carriage horses and all the other tradesmen's horses and ponies, and when I go round to the large halls and houses I used to visit regularly years ago, I find the stables empty and the yards grown over with grass. It is very distressing—nearly all the brewery and other horses have been run off the road by motors, etc.

Consequently, I am afraid the outlook for private practitioners is not very encouraging. I am of the opinion that within a few years they will be, like the horses, almost a thing of the past. I also think that veterinary surgeons will be supported and kept by the State, County Councils, Universities and Corporations. Private practitioners are diminishing every year. I have known York

* Received for publication February 14th.

for over 60 years, and as many as five veterinary surgeons in practice there, but now there is only one and several other towns are very similarly placed.

Contagious Disease.

I should like to make a few remarks about contagious diseases in general, having had a very long and large experience in them. I remember, when a boy at home, that my father lost nearly all his cattle from rinderpest. After that, when I was at Sledmere, contagious pleuro-pneumonia broke out in the large park amongst about 300 big bullocks. Consequently, it was my duty to canter round on a hack every morning and report the beginners, which were slaughtered and sold for food. This disease was also very prevalent after 1887. That year I was appointed Veterinary Surgeon for the City of Leeds, and Dr. Goldie, the M.O.H. and I visited several farms (milk and slaughtered the cows. Foot-and-mouth disease was very prevalent all over the country and on the Yorkshire Wolds very little notice was taken of it; in fact, I have known farmers buy cattle knowing they were suffering with the disease. The only fear about it was that when lambing, ewes contracted it; then the loss was considerable The next bad outbreak I had to deal with was the outbreak of rabies; people were half scared to death. Mad dogs were running about in all directions, several people lost their lives and two or three horses that were bitten had to be destroyed.

Glanders.—At that time glanders often broke out in 'bus and contractors' yards, and I well remember a very bad outbreak at Garforth Colliery amongst the pit ponies, where we shot 12, and the horse keeper, a man named Sparrow, contracted the disease and died about nine months after in Leeds Infirmary. I often called to see him.

Anthrax.—We were continually having outbursts of anthrax. I remember a case at Temple Newsam, when a beast died and they gave the internal organs to the pigs, which quickly succumbed. Two men contracted the disease; one died and the other recovered. I also remember a case at Bramhope, where a milk farmer dressed a cow suffering from anthrax; a butcher bought the carcass and sold half of it in Leeds; the other half we found in the ice house in Hunslet. We were rummaging about for hours seeking this carcass. The farmer who dressed the beast did not know it was anthrax until he had his two horses and some pigs dead two or three days afterwards. Half this carcass was sold for food, but we never heard of any bad results.

I have never been able to take any interest in veterinary politics, which I much regret, but life is too short to do everything, and it gave me much more pleasure, for the little time I had to spare, to have a day's hunting or shooting. Moreover, in those days politics and the guiding of veterinary affairs were not nearly of so much importance as they are to-day.

I now see that the Council Meeting of the Royal College lasted nearly a week. Consequently, I do not see how any private practitioner is going to spare the time and money to attend, and I think the lead given by the Scottish Branch of the N.V.M.A., who send two council members and pay their expenses, will have to be followed by other branches of the Association.

In concluding this short address, I should like to thank you all for your patient hearing, for I am sure you will want to hear cases, etc., from other members.

Mr. Bowman was thanked for his address, on behalf of the members, by Mr. Whitehead and Colonel Bowes.

International Veterinary Congress.—Members who had attended gave their impressions of the International Congress. The social side of the Congress was pointed out as having been noteworthy in its success. Colonel Bowes stressed the strenuous nature of the meetings and expressed the opinion that there was some overcrowding of the programme with papers. Mr. Dixon also said that to those who took the business meetings seriously, the week had been one of the most strenuous they had known. He had been very much struck by the fact that during the whole week there was not one paper or subject discussed appertaining to the horse. This was very significant as to the change which had taken place in Veterinary Science. He was sure that the Congress had done a great deal to raise the prestige of the profession, as members attending from local authorities and public bodies had been much impressed by the nature and scope of the Congress.

"The Treatment of Strongylosis in Horses."

The President now called upon Mr. J. W. Procter to open a discussion on "The Treatment of Strongylosis in Horses."

Mr. Procter said his attention had been brought to this subject a good deal and as a result of his observations he had come to the conclusion that a large proportion of "poor" horses were the victims of strongylosis. He did not rely on merely making a clinical examination for diagnostic purposes; where the presence of worms in the horse was doubtful he made a fæcal examination for eggs. The technique of this examination was not complicated and was one that, he thought, could be carried out by any practitioner. To estimate the benefits of treatment given to cases he thought it was necessary, in many cases, to confirm the diagnosis by examination of the fæces, and that after treatment had been given a further examination should be made so that a definite opinion as to the efficiency of the treatment could be formed.

He had now had a considerable experience of treating the disease by means of the stomach tube and was very well satisfied with the results which the treatment produced: the medicinal agents he used were salines, oil of chenopodium, with excipients to make an emulsion and a volume of up to five gallons was given at one time. He thought the value of the treatment lay in the fact that the large quantity given ensured that the medicinal agents reached the cæcum in a short time and were able to act more efficiently. In reply to Mr. Bowman, Mr. Procter said that even when a horse had reached a very debilitated condition, as very often happened in this disease, there was no untoward sequel after the administration of this treatment: if a young horse were in such a weak state, even if the chenopodium were omitted, it would always derive benefit from the administration of the salines, but in the very debilitated horses which required treatment he did not have any qualms about giving them the full treatment. In the very large number of cases which he had treated in this way he had had very good results and the treatment was one which he could certainly recommend.

Mr. F. C. Scott said that, arising out of the International Congress papers, that subject interested him. Oil of chenopodium and carbon tetrachloride, given with an adequate purgative after suitable fasting, were recommended, but that line of treatment was contraindicated in cases of enteritis.

They were often called in when enteritis was established or imminent; consequently, the above treatment could only be carried out with great peril to the life of the patient under those circumstances. He found, however, that those cases were more suitably treated by a chlorodyne containing a good proportion of volatile agents—chloroform and ether, helped by capsules of carbon tetrachloride.

In his experience secondary effects were far more common, due to aneurism, in newly-weaned foals through all ages to very old horses—two, three and four years old being, perhaps, the commonest.

He endeavoured to describe some aspects of the subject in the *Veterinary Record,* December 13th; therefore he would try to avoid repetition.

One believed that the aneurism formed in the anterior mesenteric artery always had a small channel through it through which circulation took place; so long as that remained undisturbed the animal continued apparently well. When illness occurred, however, due to migration from this aneurism, it was difficult to explain what took place. One was inclined to think that a quickly-raised blood pressure broke up parts of the thombus and liberated pieces into the circulation, and these became arrested in a terminal artery.

In a recent case, however, a dissection of the terminal arteries showed four loose embryos, so that one was inclined to view the onset of symptoms as due to their liberation. In this same case it was interesting to note that a mature strongyle was discovered between the layers of peritoneum of the mesentery.

Many cases of unthriftiness in aged horses were due to the presence of aneurism, but at the same time many horses in good condition had them.

When splitting up or migration took place one got symptoms, varying with the rapidity with which the circulation to a piece of bowel ceased. Some showed no abdominal pain, but simply dulness, collapse and death; others showed colicy pains with collapse. An injected eye was very common in these cases, and *post-mortem* revealed much venous congestion in the bowel, with thickening and, in some of these, hæmorrhage into the bowel lumen.

In cases not showing injection in the eye, *post-mortem* showed necrosis in the bowel, grey in colour and without considerable thickening.

It might be interesting to mention one case which recovered and, a fortnight later, had a return of pains, death following; in this case the piece of bowel affected was abruptly indicated by the colour shown by the blood vessels. It was possible in this case that embolism was not complete at the first instance, but became so later.

In cases where suspicion of aneurism existed, treatment weekly with carbon tetrachloride had been adopted, with a view to reaching the embryos in the arteries: two cases responded to this, but that was not sufficient experience to warrant definite conclusions. Recent research went to show that that agent, given intravenously, did not arrive at the embryo in sufficient concentration to destroy it. Antimony compounds had been tried, but up to now they had no specific.

An apparent response had again been obtained with liquor arsenicalis.

One must not lose sight of the facts that many horses showed unthriftiness and staring coat from indigestion caused by ascarides; and also that horses could harbour a heavy infestation of strongyles and still be in good condition. Fortunately the former condition, which was very common, responded to simple treatment.

Tetanus Anatoxin or Vaccine.

Nearly two years ago, anatoxin was placed at his disposal in case of need, but having no definite areas where tetanus regularly occurred to anything like a marked degree, no active immunisation against it was deemed necessary, but five cases of acute tetanus had occurred in one stable during the last six months and decision was pending whether or not to inoculate the whole stud, which was a large one.

One knew that the immunity given by injection of serum was passive and transient—probably not more than one month. In infected areas something more was required and, in fact, was available, in anatoxin.

Anatoxin was actual potential disease-producing toxin which had been treated in such a way that it had lost its ability to produce disease, but retained its power to stimulate the production of immunity. After much experiment it was found that in those cases where delay occurred in absorption, or local reaction occurred, the immunity produced was more valuable; consequently, an agent was sought to mix with the anatoxin for this purpose. Ultimately the most suitable agent was found to be tapioca powder and the anatoxin issued for use was anatoxin and tapioca powder.

Ramon and Descombey were the workers responsible for these findings; they followed on, he believed, Ramon's work on human diphtheria anatoxin. Numerous trials with the diphtheria anatoxin in human beings had given excellent results.

Method of Immunisation.—Two injections of anatoxin of 10 c.c. were given with an interval of three-four weeks between. It had been found that for practical purposes that was about the best period. The immunity was produced about 15 days after the second injection and lasted about one year. A further injection, given at that period, prolonged the immunity "*pendant une très longue durée.*"

Much local reaction was not usual, but a slight swelling, passing off in 48 hours, would not be unexpected; horses need not be kept from work whilst being treated.

The anatoxin was a stable product and would keep for a long time. It was not expensive. The product could not be used as an emergency treatment, as immunity was five or six weeks in being produced. Serum therapy still held good.

It was not desirable to use it in horses which had recently had antiserum, as that might interfere with the production of active immunity.

It was too tardy to prevent umbilical tetanus, and its use was not recommended in horses in an exhausted condition or those which were ill. Animals vaccinated earlier might, however, be revaccinated on the occurrence of accidental or surgical wounds.

It was noteworthy that Dr. Sheather read a paper on "Some Extracts from Recent Literature on Tetanus"

before the Central V.S. on June 5th, 1930 (reported in the *Veterinary Record*, July 5th). For anyone interested, the technique of preparation and experimental data were there quoted in a comprehensive and interesting manner.

Mr. W. A. Campbell observed that he did not think the effects of strongylosis were so commonly observed in older horses. On farms which he knew to be heavily infected with the parasite he never observed any ill-effects in the older working horses. Many of the cases which he met with were in such a weak state that he did not think many of them would survive the treatment recommended to the meeting. In his experience, these cases which had reached such a weak state never did very well; he found that very often a period of about a year was required to get a good recovery, but if cases could be kept alive during the winter months until spring, they would then derive a lot of benefit from good pasture and green clover.

Mr. S. E. Sampson advocated the stomach tube treatment and mentioned that there was some danger in its use if a tube of too small a calibre were employed. If such was the case, unknown to the operator the tube might turn back in the œsophagus and, as a result, the fluids would be introduced into the respiratory tract, with the usual undesirable sequelæ.

Mr. Sampson proceeded to mention cases of atypical swine erysipelas with which he had been meeting in which the typical skin lesions never showed; with serum treatment the pigs improved in a few days without doing as well afterwards as they should and when killed they showed the typical verrucose endocarditis lesions. He also mentioned a new treatment for canker of the horse's foot which had been given in the *Veterinary Record* of October 18th. This consisted of hypodermic injections of an emulsion of sheep's spleen extract, and, as described, the method did not require local treatment being given to the foot.

Mr. Sampson also asked for advice in a case which was giving him trouble. A six-year-old cat with wet eczema at the root of the tail and above the anus had not responded to a great variety of agents tried and it was difficult to prevent the animal licking the part. Scrapings made from the lesion had been negative and all dressings applied had been ineffective. He was now trying the effect of ultra-violet ray treatment, but would be glad of any helpful suggestions from others.

Mr. H. W. Good spoke as to his experience in the treatment of strongylosis in horses, and said that, in his opinion, it was the most efficient treatment. He had had experience of the treatment used in the Veterinary Corps, and said that the heroic dosage and drugs used did not have any bad results; it was a routine instruction in the Army to dose all "poor" horses and even when they were debilitated there were no untoward results.

Mr. W. R. McKinna, in response to Mr. Sampson's "cat" query, said that the real difficulty in these cases was to prevent the animal irritating the part and for this it was necessary to use a collar of some sort.

This closed the clinical discussion, and before adjourning for tea a vote of thanks to the President for his conduct in the chair was carried, having been proposed by Mr. Whitehead.

S. Sharp, *Hon. Secretary.*

Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

March 7th.—Annual Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne.

March 9th.—Meeting of the Editorial Committee, N.V.M.A., 10 Gray's Inn Square, 4.30 p.m.

March 13th.—Yorkshire Division, N.V.M.A.; Dinner-dance at Leeds.

March 19th.—Annual General Meeting of the Western Counties Division, N.V.M.A., at Exeter.

March 26th.—Meeting of the Dumfries and Galloway Division, N.V.M.A., at Carlisle.

Aug. 22nd-28th.—N.V.M.A. Congress at Norwich.

Professor James Macqueen.

It is anticipated that Professor James Macqueen, F.R.C.V.S., Past-President, N.V.M.A., will enter the Hampstead General Hospital early next week for the performance of the operation for which he has been recuperating at home since he left the hospital shortly after Christmas.

Veterinary Surgery as a Career.

In the course of the third article of the excellent series on "Schoolboys' Careers," now being contributed to the *Daily Telegraph* by Mr. Stephen Foot, the author says:—"The City and Guilds, the Imperial College of Science, the Royal School of Mines, the Royal Veterinary College, Faraday House, among others, are branches of London University, and all offer admirable training. I would mention particularly the opportunities offered by the training at the Royal Veterinary College, because there is now a serious shortage of men in this profession.

"There has been in recent years a great increase in the number of well-paid posts for veterinary surgeons, particularly in Government service at home and abroad; and for a boy who is really fond of animals this presents a fine career. The shortage is partly due to the feeling that a "vet." is not quite high enough in the social scale, but that will right itself before long. When our grandfathers were young the surgeon was often a sort of extra hand in a barber's shop, and it is less than 70 years since the dentist went round from town to town with a travelling fair."

Personal.

Miss Betty Wall, a pupil at St. Hilary's School, Cliftonville, Margate, was awarded the Silver Medal of the Associated Board of the Royal Academy of Music and Royal College of Music in the Local Centre Examinations of 1930, for obtaining Second Highest Honours marks in the United Kingdom for Pianoforte Playing in the Intermediate Grade. She also gained Honourable Mention in the Higher Division, Schools Examinations, for Violin.

In the Cambridge Local Examinations held in December, Miss Wall was successful in gaining the Schools' Certificate, with exemption from the Matriculation Examination of the University of London. Miss Wall, who was only 16 at the time, is the daughter of Major Wall, M.R.C.V.S., of Queen's Road, London, and his many friends will be interested to hear of his daughter's achievements.

R.C.V.S. Obituary.

Robinson, George, Ash Tree House, Chesterfield. Graduated Edinburgh, November 22nd, 1879. Died February 27th, 1931.

. . . . . .

Hewson, John Alex., International Hotel, Co. Kerry, I.F.S. Graduated Edinburgh, July 17th, 1897. Died February 8th, 1931.

. . . . . .

The *Cork Examiner* records that Mr. Hewson died on February 8th as the result of an accidental fall on the morning of February 6th, when he sustained a compound fracture of the thigh. Mr. Hewson was a son of the late John Hewson, Esq., J.P., Tubrid House, Ardfert, and brother of the late Major Henry Hewson, R.A.S.C.

Early Milk Inspection.

The city of Paris, in 1743, adopted an ordinance in which the keeping of cows and goats was regulated. The first real milk ordinance was later adopted in England in 1860. The city of Boston, Mass., in 1864 prohibited the sale of milk from diseased cows, and in 1879, appointed a milk inspector who had authority to collect samples of milk. The first bacterial counts of milk were made in 1892, at the same place, and in the same year in New York the Milk stations of Nathan Straus were established. The boiling of milk, in order to sterilise it, was suggested for the milk supply of New York by Doctor Jacobi in 1873, while this procedure was a routine one of Doctor Soxhlet in Germany in 1886. This was the actual beginning of pasteurisation.—Colonel Andrew E. Donovan, *Veterinary Medicine.*

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

Mr. Elphick's "Queries."

To the Editor of The Veterinary Record.

Sir,—I should like to attempt to clear up the points raised in the correspondence which has been appearing in your columns between Mr. Elphick and Mr. Tweed. In the first place, let me state that the questions raised do not refer to public health legislation, as indicated in your issue of February 28th, but are concerned with points in the administration of the Diseases of Animals Acts and Orders.*

The position of the general practitioner, in the various circumstances detailed by Mr. Elphick, is perfectly plain, simple and straightforward. He is entitled to collect and examine all or any of the samples referred to by Mr. Elphick, or to carry out any of the tests. There is nothing whatever which prohibits him from so doing or which would make his action illegal, assuming, in all cases, that he is acting with the consent of the owner of the animal concerned. Mr. Elphick is wrong in stating that he has a warrant under Article 3 (2) of the Anthrax Order of 1928, to take samples in cases where disease other than anthrax is suspected. The Anthrax Order refers to anthrax only, and its terms cannot be held to give authority to do anything in relation to another disease which is subject to control by means of an Order under the Diseases of Animals Acts.

An Anthrax Order must of necessity contain a provision prohibiting indiscriminate cutting of the skin of an affected or suspected anthrax carcass and the spilling of blood. The Anthrax Order of 1899 contained such a provision, but restricted the taking of blood for diagnosis to a veterinary inspector under the Diseases of Animals Acts. Nevertheless, during the greater part of the currency of the Order, veterinary surgeons continued to take blood samples for diagnosis, until the prosecution and conviction of a veterinary surgeon for so doing focussed attention on the restriction. The position was remedied by the Anthrax Order of 1910, and the authority to take blood for diagnosis, given by that Order to a veterinary surgeon acting on behalf of the owner, has been continued in the Order of 1928. The need for a similar prohibition and consequential permission to a general practitioner does not arise in relation to the other diseases which form the subject of Mr. Elphick's queries.

The Coal Mines Act, referred to by Mr. Elphick, in so far as it relates to animals, is concerned solely with animals which work in coal mines. It does not modify the rights or obligations of a general practitioner under the Diseases of Animals Acts and Orders in relation to other animals. So far as the latter are concerned, the general practitioner is not debarred, in any circumstances, from applying the tuberculin or mallein test when, in his judgment, the circumstances of a particular case make the application of either test advisable, provided he acts with the consent of the owner of the animal. In such a case where notification of the suspected existence of disease is necessary or is likely to follow, the most satisfactory results in the interests of all concerned are more likely to accrue from co-operative action between the general practitioner and the veterinary officers of the local authority than from a meticulous search for, or adherence to, the rights of one or the other.

It should be made clear that the right of a veterinary surgeon to take samples, to make microscopical or *post-mortem* examinations, and to apply specific tests, does not, in any respect, modify or override the obligations under which he is placed by the Animals (Notification of Disease) Order of 1919. This Order provides that a veterinary surgeon "*shall with all practicable speed*" notify the existence or suspected existence of disease in any animal which comes under his observation in the course of his practice. Strictly interpreted, this means that a veterinary surgeon, whether he has examined his samples or not, whether he has applied a specific test or not, must notify immediately he reaches the conclusion that there are reasonable grounds for suspecting that disease exists, within the meaning of the Diseases of Animals Acts and Orders, or forms the opinion that such disease is in fact present. Under the ordinary working conditions of everyday life, no difficulty should ever arise for the general practitioner, provided he and the veterinary officers of the local authority perform their respective duties in a spirit of harmony and co-operation. Everything depends on that.

It is worth noting that notification, by a veterinary surgeon, of the existence or suspected existence of disease does not relieve the owner of an animal of his responsibility to notify, unless the veterinary surgeon clearly intimates when making his notification that he is acting on behalf of the owner as well as on his own behalf.

Yours faithfully,
A. Gofton.
Chief Veterinary Inspector.

Veterinary Department,
Public Health Chambers, Edinburgh.
March 2nd, 1931.

* Responsibility for the heading to Mr. Tweed's letter rests with us.—Ed.

Bovine Pneumonia and Hæmorrhagic Septicæmia.

To the Editor of The Veterinary Record.

Sir,—Dr. Edington's letter on the above subject in your issue of to-day's date introduces much irrelevant matter and merely confuses the issue.

The title of my paper in the *Veterinary Record* of February 21st seems to me to be clear and what it means when expressed at greater length is "Is there any justification for the claim made in the article by Mr. Tweed and Dr. Edington, that the bovine pneumonia which they

describe is identical with the pneumonic form of hæmorrhagic septicæmia?"

The article by Tweed and Edington was in two sections: (1) by Mr. Tweed and (2) by Dr. Edington, and it was in the section by Mr. Tweed that the following appeared, page 237, paragraph 4:—

> "It was therefore evident that we were dealing with the pectoral form of hæmorrhagic septicæmia";

and on page 236 Tweed makes it clear beyond question that he believes he has found in Britain the disease which (quoting from Wooldridge):—

> "has been studied in the Argentine, United States, Philippine Islands, and India, as well as in Europe, but the existence of which in the British Isles has not been established";

and again on page 237, in the last paragraph, he associates "hæmorrhagic septicæmia" with "shipment and transit."

Presumably, as the article is a joint one, Dr. Edington stands by Mr. Tweed's section.

The purpose of my paper was to show that these and other authors have no justification for saying that the bovine pneumonia they describe is the pneumonic form of hæmorrhagic septicæmia, and that by so doing they merely add to the confusion already existing in the minds of those unfamiliar with the latter disease, a category to which both these authors seem to belong. Moreover, it is a pity to spread abroad the impression that such a serious disease as true hæmorrhagic septicæmia exists in Britain, if it does not.

Such statements as above quoted could not have been made if the authors were familiar with hæmorrhagic septicæmia, and if they had been familiar with it they would not establish the existence of the disease on the experimental evidence of one experimental calf which died of septicæmia. I did not, as Dr. Edington says "carefully omit" reference to that one calf. I simply did not consider that evidence of any value as an argument for the existance of hæmorrhagic septicæmia in Britain. Indeed, it is an argument against it, because in true hæmorrhagic septicæmia every calf inoculated would have died in 24 hours.

Far from implying that there is only one type of pneumonia in this country, I could add at least three more types to the three Dr. Edington is aware of, two of which he apparently claims to have discovered, but this part of Dr. Edington's letter and most of the rest of it seem to be merely in the nature of a smoke screen thrown out to cover his retreat from an untenable position.

My paper in the *Record* appeared a month after I had handed a copy of it to Mr. Tweed, which presumably he showed shortly afterwards to Dr. Edington. One must therefore assume that Dr. Edington's letter is a carefully drawn up reply to my paper and not, as I feel most of your readers will assume, a reply hastily drawn up on the spur of the moment.

Notwithstanding Tweed and Edington's article, I am of opinion that no reliable evidence has as yet been brought forward by them or anyone to show that true hæmorrhagic septicæmia in its pneumonic or abdominal form, exists in Britain. In fact, the disease is of such a nature that, were it existent here, we should not have had to wait till 1930 for its discovery.

I do not dispute for a moment that there exists in this country a pneumonia of bovines due to a pasteurella organism attacking animals whose natural resistance has been lowered from some cause or another, but that is quite another story.

Yours faithfully
S. H. Gaiger.

The University,
Liverpool.
February 28th, 1931.

Veterinary Advisory Officers.

To the Editor of The Veterinary Record.

Sir,—One would think that if there is so much surplus cash in the country to permit the appointing of Veterinary Advisory Officers and the financing of grand opera, the position of the Royal Veterinary College could be assured for all time.

At the present time, in spite of the criticisms often showered on them, I am strongly of the opinion that the rôle of advisory officers is quite satisfactorily performed by the Veterinary Officers of the Ministry of Agriculture, and that their present rate of remuneration could be greatly increased, thereby attracting the best graduates, by dispensing with these additional Veterinary Advisory Officers, and the County Livestock Officers. I should very much like to know what experience and qualifications some of the latter have got to fulfil the task given them, of advising farmers on the breeding of livestock, which, in my opinion, is purely a veterinary one. It is indeed remarkable how it is possible, in this country, for those who do not possess a veterinary degree, to secure such posts, and draw salaries that are denied to a qualified man.

I am perfectly certain that the first step towards ending our troubles is the establishment of a Veterinary Public Health Service, and the merging, under one head, of the duties divided at present between the Ministry of Agriculture and the Ministry of Health. It would not be an expensive proposition, as the present part-time Veterinary Officers would continue as they are doing, and be under the direct control of the County Veterinary Officer. The present Veterinary Officers of the Ministry of Agriculture could carry out their duties and, in addition, take on the work of "Veterinary Advisory Officers" and "County Livestock Officers," with a substantial increase in salaries that would be unnoticeable, from the national standpoint, if these other officials were dispensed with.

Turning to the consideration of one or two other matters, the eradication of tuberculosis in cattle will only be achieved when it is made compulsory in every county for all milk cattle to be periodically examined by veterinary surgeons. We are not getting half the cattle that we should, and the most dangerous cow, *i.e.*, the one with a tuberculous udder, and giving tuberculous milk, is not being dealt with in the requisite numbers. Local authorities are in many cases paying 45 shillings for "screws" that are only worth the price of their hide. The object of the Order is not being attained in many districts, and the only time that a cow with a tuberculous udder is found is after a bulk sample has been found to be positive.

A word regarding the Royal Veterinary College. I cannot understand why the Governors do not at once decide to move out into the country, and so enable the students to gain first-class experience with animals of the farm. This is the only way to meet the menace of encroachment on our preserves by other colleges and institutions. What experience can be gained in bovine diseases, in the heart of Camden Town? What progressive work, if any, is being carried out in this country towards the solution of the problem of sterility, especially in mares? We are relying too much on work done in other countries, and accept as etiological factors those existing only in such countries.

May I take up a little more of your space to supply the answer to the points raised by Lord Moynihan in his recent speech in the House of Lords? It is this—make the position of the veterinary profession a National question; put the Colleges on a sound basis, establish a Veterinary Public Health Service and, finally, insist on County Councils carrying out Acts of Parliament, with routine inspection of herds by veterinary surgeons and not by sanitary inspectors.

Yours faithfully,
J. F. D. Tutt, M.R.C.V.S.

Winchester.
February 25th, 1931.

The Editor acknowledges the receipt of the following:—

Report of a meeting of the Dumfries and Galloway Division, N.V.M.A., from Mr. F. A. Davidson, Hon. Secretary.

Communications from Mr. W. P. Blount (Derby); Dr. Fred Bullock (London); Professor J. B. Buxton (Cambridge); Messrs. H. T. Matthews (Liverpool); Walter Scott (Edinburgh); A. Watson (Cardiff) and Professor J. G. Wright (London).